

~~CONFIDENTIAL~~  
INTEROFFICE CORRESPONDENCE

139957

Piney River, Va. - April 29, 1971

OFFICE BLDG/TUBE RME DATE

TO: Piney River Office

ATTN. OF: Mr. J. F. Hopkins

SUBJECT: COPPERAS "DUMP"

REFERENCE:

COPY TO: Mr. J. J. Fitzgerald -NA  
Mr. Emil Hladky -NA  
Dr. C. P. Priesing -NA

The Piney River Plant started stockpiling copperas July, 1949. Since that time all copperas not sold was hauled to the copperas "dump". The top of the present dump contains .4.5 acres.

The dump has been surveyed and drilled to determine the quality and quantity of copperas contained.

It has been estimated that the area contains approximately 200,000 tons of material. Analysis taken at various depths from ten drill holes show that the material contains from 7.8 to 36.0% total acid as  $H_2SO_4$  (water soluble). The percent insoluble material calculated as  $FeSO_4$  varies from 1.32 to 77.47%. X-ray diffraction analysis show the "pile" to contain  $FeSO_4$ ,  $FeSO_4 \cdot H_2O$ ,  $FeSO_4 \cdot 4 H_2O$  and  $FeSO_4 \cdot 7H_2O$ .

Attached are tables containing the analysis of the drill samples, the results of the x-ray analysis and a map of the pile showing the area and elevations.

*Stephen A. Lamanna*  
Stephen A. Lamanna

SAL/jes

Attachments

200104

COPPERAS DUMP "AS IS"

Sample No.	Hole No.	Depth Ft.	Total Acid As % H <sub>2</sub> SO <sub>4</sub>	Water Sol. As % FeSO <sub>4</sub>	Total Iron As FeSO <sub>4</sub>	Insol. Iron As FeSO <sub>4</sub>	% Insol. FeSO <sub>4</sub> Basis	Iron As % Fe <sub>2</sub> O <sub>3</sub>
			As % Water	As % FeSO <sub>4</sub>	As % FeSO <sub>4</sub>	As % FeSO <sub>4</sub>	As % Fe <sub>2</sub> O <sub>3</sub>	
1	1	10	28.2	43.74	53.3	9.56	17.94	5.03
2	2	15	29.4	45.6	48.9	3.3	6.75	1.74
3	3	10 wet	36.0	55.84	53.7	-	-	-
4	4	12 W	17.4	26.99	54.2	27.21	50.2	14.32
5	5	10 W	32.4	50.26	53.7	3.44	6.41	1.81
6	6	20 W	18.0	27.92	47.4	19.48	41.1	10.25
7	7	10 W	34.8	53.98	54.7	0.72	1.32	0.38
8	8	15 W	32.4	50.26	38.1	-	-	-
9	9	10 W	12.0	18.61	52.8	34.19	64.75	17.99
10	10	15 W	32.4	50.26	61.1	10.84	17.74	5.71
11	11	15 W	15 W	32.4	50.26	3.44	6.41	1.81
12	12	15 W	15 W	32.4	34.43	29.97	46.54	15.77
13	13	20 W	22.2	22.2	13.03	39.77	75.32	20.93
14	14	10 W	8.4	8.4	12.1	41.6	77.47	21.89
15	15	15 W	7.8	7.8	12.1	53.7	41.6	21.89
16	16	10 W	21.6	33.5	65.1	31.6	48.54	16.63
17	17	20 W	18.6	28.85	42.95	59.82	22.6	22.6
18	18	10 W	33.0	51.19	54.6	42.95	59.82	22.6
19	19	20	34.2	53.05	3.41	6.25	1.79	1.79
20	20	25 W	25.8	40.02	49.8	9.78	6.25	6.25
21	21	30 W	22.8	35.37	45.9	10.53	22.94	22.94
22	22	10 W	32.4	50.26	54.6	1.55	2.84	0.82
23	23	20 W	33.0	51.19	49.8	9.78	6.25	6.25
24	24	30 W	32.4	50.26	53.1	10.53	22.94	22.94
25	25	40 W	33.0	51.19	53.1	1.55	2.84	0.82
26	26	10 W	32.4	50.26	53.1	10.53	22.94	22.94
27	27	20 W	30.6	47.46	52.6	5.14	9.77	9.77
28	28	30 W	34.2	32.57	42.9	10.33	24.08	24.08
29	29	40 W	21.0	54.1	54.1	7.57	13.99	13.99
30	30	30 W	30.0	46.53	48.8	2.27	4.65	4.65
31	31	40 W	34.2	53.05	52.6	-	-	-
32	32	30 W	28.2	43.74	51.3	7.56	14.74	3.98
33	33	40 W	-	-	-	-	-	-
34	34	30 W	-	-	-	-	-	-
35	35	40 W	-	-	-	-	-	-
36	36	30 W	-	-	-	-	-	-
37	37	30 W	-	-	-	-	-	-
38	38	30 W	-	-	-	-	-	-
39	39	30 W	-	-	-	-	-	-
40	40	30 W	-	-	-	-	-	-
41	41	30 W	-	-	-	-	-	-
42	42	30 W	-	-	-	-	-	-
43	43	30 W	-	-	-	-	-	-
44	44	30 W	-	-	-	-	-	-
45	45	30 W	-	-	-	-	-	-
46	46	30 W	-	-	-	-	-	-
47	47	30 W	-	-	-	-	-	-
48	48	30 W	-	-	-	-	-	-
49	49	30 W	-	-	-	-	-	-
50	50	30 W	-	-	-	-	-	-
51	51	30 W	-	-	-	-	-	-
52	52	30 W	-	-	-	-	-	-
53	53	30 W	-	-	-	-	-	-
54	54	30 W	-	-	-	-	-	-
55	55	30 W	-	-	-	-	-	-
56	56	30 W	-	-	-	-	-	-
57	57	30 W	-	-	-	-	-	-
58	58	30 W	-	-	-	-	-	-
59	59	30 W	-	-	-	-	-	-
60	60	30 W	-	-	-	-	-	-
61	61	30 W	-	-	-	-	-	-
62	62	30 W	-	-	-	-	-	-
63	63	30 W	-	-	-	-	-	-
64	64	30 W	-	-	-	-	-	-
65	65	30 W	-	-	-	-	-	-
66	66	30 W	-	-	-	-	-	-
67	67	30 W	-	-	-	-	-	-
68	68	30 W	-	-	-	-	-	-
69	69	30 W	-	-	-	-	-	-
70	70	30 W	-	-	-	-	-	-
71	71	30 W	-	-	-	-	-	-
72	72	30 W	-	-	-	-	-	-
73	73	30 W	-	-	-	-	-	-
74	74	30 W	-	-	-	-	-	-
75	75	30 W	-	-	-	-	-	-
76	76	30 W	-	-	-	-	-	-
77	77	30 W	-	-	-	-	-	-
78	78	30 W	-	-	-	-	-	-
79	79	30 W	-	-	-	-	-	-
80	80	30 W	-	-	-	-	-	-
81	81	30 W	-	-	-	-	-	-
82	82	30 W	-	-	-	-	-	-
83	83	30 W	-	-	-	-	-	-
84	84	30 W	-	-	-	-	-	-
85	85	30 W	-	-	-	-	-	-
86	86	30 W	-	-	-	-	-	-
87	87	30 W	-	-	-	-	-	-
88	88	30 W	-	-	-	-	-	-
89	89	30 W	-	-	-	-	-	-
90	90	30 W	-	-	-	-	-	-
91	91	30 W	-	-	-	-	-	-
92	92	30 W	-	-	-	-	-	-
93	93	30 W	-	-	-	-	-	-
94	94	30 W	-	-	-	-	-	-
95	95	30 W	-	-	-	-	-	-
96	96	30 W	-	-	-	-	-	-
97	97	30 W	-	-	-	-	-	-
98	98	30 W	-	-	-	-	-	-
99	99	30 W	-	-	-	-	-	-
100	100	30 W	-	-	-	-	-	-
101	101	30 W	-	-	-	-	-	-
102	102	30 W	-	-	-	-	-	-
103	103	30 W	-	-	-	-	-	-
104	104	30 W	-	-	-	-	-	-
105	105	30 W	-	-	-	-	-	-
106	106	30 W	-	-	-	-	-	-
107	107	30 W	-	-	-	-	-	-
108	108	30 W	-	-	-	-	-	-
109	109	30 W	-	-	-	-	-	-
110	110	30 W	-	-	-	-	-	-
111	111	30 W	-	-	-	-	-	-
112	112	30 W	-	-	-	-	-	-
113	113	30 W	-	-	-	-	-	-
114	114	30 W	-	-	-	-	-	-
115	115	30 W	-	-	-	-	-	-
116	116	30 W	-	-	-	-	-	-
117	117	30 W	-	-	-	-	-	-
118	118	30 W	-	-	-	-	-	-
119	119	30 W	-	-	-	-	-	-
120	120	30 W	-	-	-	-	-	-
121	121	30 W	-	-	-	-	-	-
122	122	30 W	-	-	-	-	-	-
123	123	30 W	-	-	-	-	-	-
124	124	30 W	-	-	-	-	-	-
125	125	30 W	-	-	-	-	-	-
126	126	30 W	-	-	-	-	-	-
127	127	30 W	-	-	-	-	-	-
128	128	30 W	-	-	-	-	-	-
129	129	30 W	-	-	-	-	-	-
130	130	30 W	-	-	-	-	-	-
131	131	30 W	-	-	-	-	-	-
132	132	30 W	-	-	-	-	-	-
133	133	30 W	-	-	-	-	-	-
134	134	30 W	-	-	-	-	-	-
135	135	30 W	-	-	-	-	-	-
136	136	30 W	-	-	-	-	-	-
137	137	30 W	-	-	-	-	-	-
138	138	30 W	-	-	-	-	-	-
139	139	30 W	-	-	-	-	-	-
140	140	30 W	-	-	-	-	-	-
141	141	30 W	-	-	-	-	-	-
142	142	30 W	-	-	-	-	-	-
143	143	30 W	-	-	-	-	-	-
144	144	30 W	-	-	-	-	-	-
145	145	30 W	-	-	-	-	-	-
146	146	30 W	-	-	-	-	-	-
147	147	30 W	-	-	-	-	-	-
148	148	30 W	-	-	-	-	-	-
149	149	30 W	-	-	-	-	-	-
150	150	30 W	-	-	-	-	-	-
151	151	30 W	-	-	-	-	-	-
152	152	30 W	-	-	-	-	-	-
153	153	30 W	-	-	-	-	-	-
154	154	30 W	-	-	-	-	-	-
155	155	30 W	-	-	-	-	-	-
156	156	30 W	-	-	-	-	-	-
157	157	30 W	-	-	-	-	-	-
158	158	30 W	-	-	-	-	-	-
159	159	30 W	-	-	-	-	-	-
160	160	30 W	-	-	-	-	-	-
161	161	30 W	-	-	-	-	-	-
162	162	30 W	-	-	-	-	-	-
163	163	30 W	-	-	-	-	-	-
164	164	30 W	-	-	-	-	-	-
165	165	30 W	-	-	-	-	-	-
166	166	30 W	-	-	-	-	-	-
167	167	30 W	-	-	-	-	-	-
168	168	30 W	-	-	-	-	-	-
169	169	30 W	-	-	-	-	-	-
170	170	30 W	-	-	-	-	-	-
171	171	30 W	-	-	-	-	-	-
172	172	30 W	-	-	-	-	-	-
173	173	30 W	-	-	-	-	-	-
174	17							

X-RAY DIFFRACTION ANALYSIS

Hole No.	Depth Ft.	$\text{FeSO}_4$	$\text{FeSO}_4 \cdot \text{H}_2\text{O}$	$\text{FeSO}_4 \cdot 4\text{H}_2\text{O}$	$\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$
1	15	little	little	little	mostly
2	10	little	little	little	mostly
3	10	little	little	little	mostly
4	10	little	little	some	some
5	10	little	some	some	lot
6	10	little	little	some	some
7	10	little	little	some	some
8	25	little	little	mostly	some
9	30	little	little	mostly	some
10	30	little	little	mostly	little or none

Any oxides present were in such small amounts that their major lines were obscured by the minor lines of the sulfates.

200106

BY C.I.H. DATE 4-26-71 SUBJECT COPPER R.R. DUMP  
CHKD. BY DATE

SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_  
JOB NO. \_\_\_\_\_  
SCALE 1:1=100' A

